

sequence listing

<110> CreaGene Inc.
 <120> METHOD FOR IMPROVING GENETIC STABILITY OF FOREIGN INSERT
 NUCLEOTIDE SEQUENCE IN RECOMBINANT SINGLE-STRANDED RNA VIRUS
 <130> CreaGene-USA-1
 <150> KR 2001-6229
 <151> 2001-02-08
 <160> 95
 <170> KopatentIn 1.71
 <210> 1
 <211> 300
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> SIV gag-100

1
 agccccgagaa cattaaatgc ctgggtaaaa ttgatagagg aaaagaaatt tggagcagaa 60
 gtagtgccag gatttcaggc actgtcagaa ggttgcaccc cctatgacat taatcagatg 120
 ttaaattgtg tgggagacca tcaagcggct atgcagatta tcagagatat tataaacgag 180
 gaggctgcag attgggactt gcagcaccca caaccagctc cacaacaagg acaacttagg 240
 gagccgtcag gatcagatat tgcaggaaca actagttcag tagatgaaca aatccagtgg 300
 300

<210> 2
 <211> 300
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> SIV gag-100/M

2
 agtccaagaa cattaaatgc atgggtaaaa ttaatagaag aaaaaaaatt tggagcagaa 60
 gtagttccag gatttcaagc attatcagaa ggttgtactc catatgatat taatcaaag 120
 ttaaattgtg taggagatca tcaagcagct atgcaaatta taagagatat tataaatgaa 180
 gaagctgcag attgggattt acaacatcca caaccagctc cacaacaagg acaattaaga 240
 gaaccttcag gatcagatat tgcaggaaca actagttcag tagatgaaca aattcaatgg 300
 300

<210> 3
 <211> 342
 <212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> SIV gag-114

<400> 3
ccagtacaac aaataggtgg taactatgtc cacctgccat taagcccgag aacattaaat 60
gcctgggtaa aattgataga ggaaaagaaa tttggagcag aagtagtgcc aggatttcag 120
gcactgtcag aaggttgcac cccctatgac attaatcaga tgttaaattg tgtgggagac 180
catcaagcgg ctatgcagat tatcagagat attataaacg aggaggctgc agattgggac 240
ttgcagcacc cacaaccagc tccacaacaa ggacaactta gggagccgtc aggatcagat 300
attgcaggaa caactagttc agtagatgaa caaatccagt gg 342

<210> 4

<211> 501

<212> DNA

<213> Artificial Sequence

<220>

<223> SIV p27-167

<400> 4
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gcactgtcag aaggttgcac cccctatgac attaatcaga tgttaaattg tgtgggagac 180
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attgcaggaa caactagttc agtagatgaa caaatccagt ggatgtacag acaacagaac 360
cccataccag taggcaacat ttacaggaga tggatccaac tggggttgca aaaatgtgtc 420
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agctatgtag acaggttcta c 501

<210> 5

<211> 450

<212> DNA

<213> Artificial Sequence

<220>

<223> SIV p27-150

<400> 5
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gcctgggtaa aattgataga ggaaaagaaa tttggagcag aagtagtgcc aggatttcag 120

sequence listing

gcactgtcag aaggttgac cccctatgac	attaatcaga tgttaaattg tgtgggagac	180
catcaagcgg ctatgcagat tatcagagat	attataaacg aggaggctgc agattgggac	240
ttgcagcacc cacaaccagc tccacaacaa	ggacaactta gggagccgtc aggatcagat	300
attgcaggaa caactagttc agtagatgaa	caaatccagt ggatgtacag acaacagaac	360
cccataccag taggcaacat ttacaggaga	tggatccaac tggggttgca aaaatgtgtc	420
agaatgtata acccaacaaa cattctagat		450

<210> 6
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> SIV env-108

<400> 6		
acttctactt ggtttggctt taatggaact	agagcagaaa atagaactta tatttactgg	60
catggtaggg ataataggac tataattagt	ttaaataagt attataatct aacaatgaaa	120
tgtagaagac caggaaataa gacagtttta	ccagtcacca ttatgtctgg attggttttc	180
cactcacaac caatcaatga taggccaaag	caggcatggt gttggtttgg aggaaaatgg	240
aaggatgcaa taaaagaggt gaagcagacc	attgtcaaac atcccaggta tactggaact	300
aacaatactg ataaaatcaa tttg		324

<210> 7
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> SIV env-108/M

<400> 7		
actagcactt ggttcggctt caacggaact	agggcagaga acagaactta catctactgg	60
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tgcaggagac caggaaataa gacagtgcta	ccagtcacca tcatgtccgg gttggtcttc	180
cactcacagc ccatcaatga caggcccaag	caggcctggt gttggttcgg aggcaagtgg	240
aaggatgcca taaaggaggt gaagcagacc	attgtcaagc atcccaggta cactggaact	300
aacaacactg acaagatcaa tttg		324

<210> 8
 <211> 294
 <212> DNA
 <213> Artificial Sequence

sequence listing

<220>
<223> HIV-1 env-98

<400> 8
ttaaatggca gtctagcaga agaagacata gtaattagat ctgaaaattt cacagacaat 60
gctaaaacca taatagtaca gctaaatgaa tctgtagtaa ttaattgtac aagacccaac 120
aacaatacaa gaagaagggtt atctatagga ccaggggagag ctttttatgc aagaagaaac 180
ataataggag atataagaca agcacattgt aacattagta gagcaaaatg gaataacact 240
ttacaacaga tagttataaa attaagagaa aaatttagga ataaaacaat agcc 294

<210> 9
<211> 294
<212> DNA
<213> Artificial Sequence

<220>
<223> HIV-1 env-98/M

<400> 9
ttaaatggca gtctagcaga agaagacata gtaattagat ctgaaaattt cacagacaat 60
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aacaatacaa gaagaagggtt atctatagga ccaggggagag ctttttatgc aagaagaaac 180
ataataggag atataagaca agcacattgt aacattagta gagcaaaatg gaataacact 240
ttacaacaga tcgtgatcaa gtttcgggag aagttccgga acaagacgat cgcc 294

<210> 10
<211> 249
<212> DNA
<213> Artificial Sequence

<220>
<223> HIV-1 env-83

<400> 10
ttaaatggca gtctagcaga agaagacata gtaattagat ctgaaaattt cacagacaat 60
gctaaaacca taatagtaca gctaaatgaa tctgtagtaa ttaattgtac aagacccaac 120
aacaatacaa gaagaagggtt atctatagga ccaggggagag ctttttatgc aagaagaaac 180
ataataggag atataagaca agcacattgt aacattagta gagcaaaatg gaataacact 240
ttacaacag 249

<210> 11
<211> 213
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
<223> HIV-1 env-71

<400> 11
ctaaatgaat ctgtagtaat taattgtaca agaccaaca acaatacaag aagaaggtta 60
tctataggac caggagagc attttatgca agaagaaaca taataggaga tataagacaa 120
gcacattgta acattagtag agcaaaatgg aataacactt tacaacagat agttataaaa 180
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<210> 12
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> PV 2-127

<400> 12
gcgctgacag ccgtagagac aggggccacc aaccattgg tgccttcaga cacggtacaa 60
actcgtcacg tcatccaaaa gcggacgcgg tcggagtcta cggttgagtc tttcttcgca 120
agaggagctt gtgtggccat tattgaagtg gataatgatg ctccaacaag gcgtgccagt 180
aaattatfff cagtctggaa gataacttac aaggacaccg ttcagttaag acgtaagttg 240
gagttcttta catattcaag gtttgacatg gagttcacct ttgtggttac atccaattat 300
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ggggcaccga tccctggcaa g 381

<210> 13
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> PV 2-118

<400> 13
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tttacaatatt caaggtttga catggagttc acctttgtgg ttacatccaa ttataccgat 180
gcaaacaatg ggcacgcact gaatcaagtt taccagataa tgtacatacc acctggggca 240
ccgatccctg gcaagcggaa tgattacaca tggcaaacgt catctaacc atcagtgttt 300
tacacttacg gggcacctcc agctagaata tcagtgcctt acgtgggcat tgcc 354

sequence listing

<210> 14
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> PV 3-110

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gcgtgcgtcg ctattattga ggtggacaat gaacaaccaa ccacccgggc acagaaacta 120
tttgccatgt ggcgcattac atacaaagat acagtgcagt tgcgccgtaa gttggagttt 180
ttcacatact ctcgttttga catggaattc accttcgtgg taaccgcaa cttcaccaac 240
gctaataatg ggcatgcact caaccagggtg taccagataa tgtacatccc cccaggggca 300
cccacaccaa agtcatggga cgactacact 330

<210> 15
<211> 480
<212> DNA
<213> Artificial Sequence

<220>
<223> HCV core-160

<400> 15
atgagcacia atcctaaacc tcaaagaaaa accaaaagaa acaccaaccg tcgcccacia 60
gacgtcaagt tcccggggcg tggtcagatc gttggtggag ttacctgtt gccgcgcagg 120
ggccccagggt tgggtgtgcg cgcgactagg aagacttccg agcgggtcgca acctcgtgga 180
aggcgacagc ctatcccaa ggctcgcaa cccgagggtg ggacctgggc tcagcccggg 240
tacccttggc ccctctatgg caatgagggt ctgggatggg caggatggct cctgtcaccc 300
cgcggtcttc ggcctagttg gggccccaca gacccccggc gtaggtcgcg taatttgggt 360
aagggtcatcg atactctcac atgcggcttc gccgacctca tggggtacat tccgctcgtc 420
ggcgcccccc tagggggcgt tgccagggcc ttggcacatg gtgtccggct tctggaggac 480
480

<210> 16
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> HCV core-100

<400> 16
atgagcacia atcctaaacc tcaaagaaaa accaaaagaa acaccaaccg tcgcccacia 60

sequence listing

gacgtcaagt tcccgggagg tggtcagatc gttggtggag tttacctgtt gccgcgcagg	120
ggccccagggt tgggtgtgag cgcgactagg aagacttccg agcgggtcgca acctcgtgga	180
aggcgacagc ctatcccca ggctcgccaa cccgagggtta ggacctgggc tcagcccggg	240
tacccttggc ccctctatgg caatgagggt ctgggatggg caggatggct cctgtcaccc	300
	300

<210>	17
<211>	399
<212>	DNA
<213>	Artificial Sequence
<220>	
<223>	PV 2.3-131

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gcgctgacag ccgtagagac agggggccacc aaccattgg tgccttcaga cacggtacaa	60	
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agaggagctt gtgtggccat tattgaagtg gataatgatg ctccaacaag gcgtgccagt	180	
aaattatttt cagtctggaa gataactgaa ttcgagtcca caatagaatc attcttcgca	240	
cgcggggagc gcgtcgctat tattgagggt gacaatgaac aaccaaccac ccgggcacag	300	
aaactatttg ccatgtggcg cattacatac aaagatacag tgcagttgag ccgtaagttg	360	
gagtttttca catactctcg ttttgacatg gaattcacc	399	

<210>	18
<211>	336
<212>	DNA
<213>	Artificial Sequence
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<223>	PV 2.3-112

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gctattattg aggtggacaa tgaacaacca accacccggg cacagaaact atttgccatg	240	
tggcgcatat catacaaaga tacagtgcag ttgcgccgta agttggagtt tttcacatac	300	
tctcgttttg acatggaatt caccttcgtg gtaacc	336	

<210>	19
<211>	306
<212>	DNA

sequence listing

<213> Artificial Sequence

<220>

<223> HBVcs

<400> 19

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ttgtggtttc acatttcctg tcttacgttt gggagacaaa ctgttcttga atatttggtg      60
tcctttggag tgtggattcg cactcctcct gcatatagac caccaaagtc ccctatctta      120
tcaacacttc cggaactac tgttggtaga gaattcccag gatcatcaac caccagcacg      180
ggaccatgca agacttgac agctcctgct caaggaacct ctatgtttcc ctcatgttgc      240
tgtacaaaac ctacggacgg aaactgcacc tgtattccca tcccatcatc ttgggccttc      300
gcaaaa                                           306

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<210> 20

<211> 360

<212> DNA

<213> Artificial Sequence

<220>

<223> HIV-1 mv3

<400> 20

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attaattgta caagaccaa caacaataca agaagaaggt tatctatagg accagggaga      60
gcattttatg caagaagaaa cataatagga gatataagac aagcacattg taacattgaa      120
ttcattaatt gtacaagacc caacaacaat acaagaagaa ggttatctat aggaccaggg      180
agagcatttt atgcaagaag aaacataata ggagatataa gacaagcaca ttgtaacatt      240
ctgcagatta attgtacaag acccaacaac aatacaagaa gaaggttatc tataggacca      300
gggagagcat tttatgcaag aagaaacata ataggagata taagacaagc acattgtaac      360

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<210> 21

<211> 240

<212> DNA

<213> Artificial Sequence

<220>

<223> HIV-1 PND8

<400> 21

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tctataggac caggagagc attttatgca tctataggac caggagagc attttatgca      60
tctataggac caggagagc attttatgca tctataggac caggagagc attttatgca      120
tctataggac caggagagc attttatgca tctataggac caggagagc attttatgca      180
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sequence listing

240

<210> 22
<211> 450
<212> DNA
<213> Artificial Sequence

<220>
<223> PVM-150/M

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gactgcgggt gccagccat catcgaggtc gataacgatg cccctaccaa gcgagccagc 120
aagctcttca gcgaattcga ggtcgataat gagcagccca ctacccgagc ccagaagctc 180
ttcgccatgt ggcgatcac ttacaaggac aatgatgcgc caactaagcg cgcattctaa 240
ctgtgcgtcc gaattacat gaagcccaag caggttcgat gctccggctg tcccgtatt 300
atcgaagtgg ataacgacgc accaaccaaa cgggcatcaa agctggacaa ctaccagtcc 360
ccatgcgcga tcaacgagca acctaccacc cgtgcgcaa agtccgctgg gtgcttctat 420
cagaccgcg tcgtggttcc ctcaggttg 450

<210> 23
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> PVM-137/M

<400> 23
ttctaccaga cgcgagtgg tgtcccagac aacgaacagc cgactacccg ggcaggccaa 60
gcctccaccg aaggcgactg cggttgccca gccatcatcg aggtcgataa tgagcagccc 120
actaccgag cccagaagct cttcgccatg tggcgatatc cttacaagga caatgatgcg 180
ccaactaagc gcgcatctaa actgtgcgtc cgaatctaca tgaagcccaa gcacgttcga 240
tgctccggct gtcccgtat tatcgaagtg gataacgacg caccaaccaa acgggcatca 300
aagctggaca actaccagtc ccatgcgcg atcaacgagc aacctaccac ccgtgcgcaa 360
aagtccgctg ggtgcttcta tcagaccgc gtcgtggttc cctcaggttg t 411

<210> 24
<211> 396
<212> DNA
<213> Artificial Sequence

<220>
<223> PVM-132/M

sequence listing

<400> 24
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gactgcggtt gcccagccat catcgaggtc gataatgagc agcccactac ccgagcccag 120
aagctcttcg ccatgtggcg tatcacttac aaggacaatg atgcgccaac taagcgcgca 180
tctaaactgt gcgctccgaat ctacatgaag cccaagcacg ttcgatgctc cggctgtccc 240
gctattatcg aagtggataa cgacgcacca accaaacggg catcaaagct ggacaactac 300
cagtcccat gcgcgatcaa cgagcaacct accacccgtg cgcaaaagtc cgctgggtgc 360
ttctatcaga cccgcgtcgt ggttcctca ggttgt 396

<210> 25
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV gag-100

<400> 25
attataccgc ggagcccgag aacattaaat g 31

<210> 26
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV gag-100

<400> 26
attattgccg gccactgga tttgttcac t 31

<210> 27
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV gag-114

<400> 27
ttaattccgc ggccagtaca acaaataggt gg 32

<210> 28
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV gag-114

sequence listing

<400> 28
aatatagccg gccactgga ttgttcac tac 33

<210> 29
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV p27-167

<400> 29
atattaccgc ggccagtaca acaaataagg g 31

<210> 30
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV p27-167

<400> 30
ttaattgccg gcgtagaacc tgtctacata gct 33

<210> 31
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV p27-150

<400> 31
tataatccgc ggccagtaca acaaataagg gg 32

<210> 32
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV p27-150

<400> 32
aatattgccg gcatctagaa tgtttggtg gta 34

<210> 33
<211> 32
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
 <223> sense primer for PCR amplification of SIV env-108

 <400> 33
 ttaaataccgc ggacttctac ttggtttggc tt 32

 <210> 34
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer for PCR amplification of SIV env-108/M

 <400> 34
 tatattgccg gccaaattga ttttatcagt attg 34

 <210> 35
 <211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer for PCR amplification of HIV-1 env-98

 <400> 35
 ataataccgc ggttaaattgg cagtctagca gaaga 35

 <210> 36
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer for PCR amplification of HIV-1 env-98

 <400> 36
 ataaatgccg gcggctattg ttttattcct aaatttttc 39

 <210> 37
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer for PCR amplification of HIV-1 env-83

 <400> 37
 taaataccgc ggttaaattgg cagtctagca ga 32

 <210> 38
 <211> 33
 <212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> antisense primer for PCR amplification of HIV-1 env-83

<400> 38

attattgccg gcctgttgta aagtgttatt cca

33

<210> 39

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> sense primer for PCR amplification of HIV-1 env-71

<400> 39

aatataccgc ggctaaatga atctgtagta atta

34

<210> 40

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> antisense primer for PCR amplification of HIV-1 env-71

<400> 40

ataatagccg gcggctattg ttttattcct aaatt

35

<210> 41

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> sense primer for PCR amplification of HIV-1 env-98/M

<400> 41

agttcaggaa caagaccatc gcccggccgt atta

34

<210> 42

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> antisense primer for PCR amplification of HIV-1 env-98/M

<400> 42

tctccctaag cttgatcact atctgttgta aagtg

35

<210> 43

sequence listing

<211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of PV 2-127

<400> 43
 aatttaccgc gggcgctgac agccgtagag 30

<210> 44
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of PV 2-127

<400> 44
 ttaatagccg gccttgccag ggatcggtgc 30

sequence listing

<210> 45
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of PV 2-118

<400> 45
 attataccgc gggcttggtg gccattatt g 31

<210> 46
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of PV 2-118

<400> 46
 ataatagccg gcggcaatgc ccacgtaggg 30

<210> 47
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of PV 3-110

<400> 47
 ataataccgc ggcacgtagt ccaacgacgc 30

sequence listing

<210> 48
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of PV 3-110

<400> 48
 aataatgccg gcagtgtagt cgtcccatga 30

<210> 49
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of HCV core-160

<400> 49
 ataataccgc ggatgagcac aaatcctaaa cc 32

<210> 50
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of HCV core-160

<400> 50
 ttaattgccg gcgtcctcca gaagccggac ac 32

<210> 51
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of HCV core-100

<400> 51
 aatataccgc ggatgagcac aaatcctaaa cctcaa 36

<210> 52
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of HCV core-100

<400> 52

sequence listing
atatttgccg gcgggtgaca ggagccatcc t 31

<210> 53
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of HBVsAg-100

<400> 53
atatatccgc ggcttctgga ctatcaaggt at 32

<210> 54
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of HBVsAg-100

<400> 54
ataaatgccg gcccatataa ctgaaagcca ga 32

<210> 55
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of HBVsAg-76

<400> 55
attattccgc ggatggagag catcgcatca 30

<210> 56
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of HBVsAg-76

<400> 56
ataatagccg gcacacatcc agcgataacc 30

<210> 57
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(Sst II/ w2: 2608-2623) for PCR amplification of PV2,3-131

sequence listing

<400> 57
attaatccgc gggcgctgac agccgta 27

<210> 58
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(EcoR I/W2: 2800-2814) for PCR amplification of
PV2,3-131

<400> 58
atattagaat tcagttatct tccagactga 30

<210> 59
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(EcoR I/Leon: 2690-2707) for PCR amplification of
PV2,3-131

<400> 59
attatcgaat tcgagtccac aatagaatca 30

<210> 60
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(Eag I/Leon: 2958-2975) for PCR amplification of
PV2,3-131

<400> 60
attaatcggc cggtccatgt caaaacgaga 30

<210> 61
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(Sst II/W2 VP1: 253-269) for PCR amplification of
PV2,3-112

<400> 61
attaatccgc gggcttgtgt ggccattat 29

<210> 62

sequence listing

<211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer(BamH I/W2 VP1: 417-400) for PCR amplification of
 PV2,3-112

 <400> 62
 atattaggat cctgtaacca caaaggtgaa 30

 <210> 63
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer(BamH I/Leon VP1: 274-261) for PCR amplification of
 PV2,3-112

 <400> 63
 attatcggat ccgcgtgcgt cgctatt 27

 <210> 64
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer(Eag I/Leon VP1: 411-396) for PCR amplification
 of PV2,3-112

 <400> 64
 attaatcggc cgggttacca cgaaggtg 28

 <210> 65
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer(core-Sst II) for PCR amplification of HBVcs

 <400> 65
 aatataccgc ggttggtggtt tccatttcct 30

 <210> 66
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer(core-Hind III) for PCR amplification of HBVcs

sequence listing

<400> 66
cctgggaatt ctctaacaac agtagtttc 29

<210> 67
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(surface-Hind III) for PCR amplification of HBVcs

<400> 67
atatatgaat tcccaggatc atcaaccacc 30

<210> 68
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(surface-Eag I) for PCR amplification of HBVcs

<400> 68
ataatagccg gcttttgcga aagcccaaga tga 33

<210> 69
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(BamH I-V3) for PCR amplification of HIV-1 mv3

<400> 69
accgaggatc cactgctgtt aaatggcagt 30

<210> 70
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(EcoR I-V3) for PCR amplification of HIV-1 mv3

<400> 70
ctacagaatt caatgttaca atgtgctt 28

<210> 71
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(EcoR I-V3) for PCR amplification of HIV-1 mv3

sequence listing

<400> 71
ctacagaatt cattaattgt acaagacc 28

<210> 72
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(V3-PstI) for PCR amplification of HIV-1 mV3

<400> 72
caagtctgca gaatgttaca atgtgctt 28

<210> 73
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(PstI-V3) for PCR amplification of HIV-1 mV3

<400> 73
caagtctgca gattaattgt acaagacc 28

<210> 74
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(V3-Hind III) for PCR amplification of HIV-1 mV3

<400> 74
gcattaagct taaatgttac aatgtgcttg tc 32

<210> 75
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(SstII-V3) for PCR amplification of HIV-1 mV3

<400> 75
aggcctccgc ggattaattg tacaagacc 29

<210> 76
<211> 29
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
<223> antisense primer(V3-EagI) for PCR amplification of HIV-1 mv3

<400> 76
aggcctcggc cgaatgttac aatgtgctt 29

<210> 77
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(PND) for PCR amplification of HIV-1 PND8

<400> 77
cagaggggac caggagagc attgtttaca 30

<210> 78
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(PND) for PCR amplification of HIV-1 PND8

<400> 78
cctctgtgta acaaatgctc tccctgtcc 30

<210> 79
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(SstII-PND) for PCR amplification of HIV-1 PND8

<400> 79
aggcctccgc ggcagagggg accaggg 27

<210> 80
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(PND-EagI) for PCR amplification of HIV-1 PND8

<400> 80
aacgttcggc cgtgtaacaa atgctctccc 30

<210> 81
<211> 77
<212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> primer 1/Sst II for ligation-free PCR amplification of Pvm-150 and Pvm-150/M

<400> 81

attataccgc gggctaaggc cgttgagcc tggaccctga aagccgctgc aggccaagcc 60

tccaccgaag gcgactg 77

<210> 82

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 2 for ligation-free PCR amplification of Pvm-150

<400> 82

gctggctcgc ttggtagggg catcggtatc gacctgatg atggctgggc aaccgcagtc 60

gccttcggtg 70

<210> 83

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 3 for ligation-free PCR of Pvm-150

<400> 83

accaagcgag ccagcaagct cttcagcgaa ttcgaggtcg ataatgagca gcccactacc 60

cgagcccaga 70

<210> 84

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 4 for ligation-free PCR amplification of Pvm-150

<400> 84

cgcttagttg gcgcattcatt gtccttgtaa gtgatacgcc acatggcgaa gagcttctgg 60

gctcgggtag 70

<210> 85

<211> 70

<212> DNA

<213> Artificial Sequence

sequence listing

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<220>
<223> primer 5 for ligation-free PCR amplification of Pvm-150

<400>      85
tgcgccaact aagcgcgcat ctaaactgtg cgtccgaatc tacatgaagc ccaagcacgt      60
tcgatgctcc                                                                70

<210>      86
<211>      70
<212>      DNA
<213>      Artificial Sequence

<220>
<223> primer 6 for ligation-free PCR amplification of Pvm-150

<400>      86
ttgatgcccg tttggttggt gcgtcggtat ccacttcgat aatagcggga cagccggagc      60
atcgaacgtg                                                                70

<210>      87
<211>      70
<212>      DNA
<213>      Artificial Sequence

<220>
<223> primer 7 for ligation-free PCR amplification of Pvm-150

<400>      87
ccaaacgggc atcaaagctg gacaactacc agtcccatg cgcgatcaac gagcaaccta      60
ccacccgtgc                                                                70

<210>      88
<211>      82
<212>      DNA
<213>      Artificial Sequence

<220>
<223> primer 8/Eag I for ligation-free PCR amplification of Pvm-150

<400>      88
tattaacggc cgacaacctg agggaaccac gacgcgggtc tgatagaagc acccagcgga      60
cttttgcgca cgggtggtag gt                                                                82

<210>      89
<211>      70
<212>      DNA
<213>      Artificial Sequence

<220>
<223> primer 2 for ligation-free PCR amplification of Pvm-150/M

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sequence listing

<400> 89
actggcacgc tttgttgag catcattatc cacttcaata atggctgggc aaccgcagtc 60
gccttcggtg 70

<210> 90
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 3 for ligation-free PCR amplification of Pvm-150/M

<400> 90
acaaagcgtg ccagtaaatt attcagcgaa ttcgaggctg ataatgaaca accaaccacc 60
cgggcacaga 70

<210> 91
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 4 for ligation-free PCR amplification of Pvm-150/M

<400> 91
cgctttgttg gagcatcatt atccttgtaa gtgatacgcc acatggcgaa gagtttctgt 60
gcccgggttg 70

<210> 92
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 5 for ligation-free PCR amplification of Pvm-150/M

<400> 92
tgctccaaca aagcgtgcca gtaaattgtg cgtccgaatc tacatgaagc ccaagcacgt 60
tcgatgctcc 70

<210> 93
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 6 for ligation-free PCR amplification of Pvm-150/M

<400> 93
tactggcacg ctttgttgga gcatcggtat ccacttcaat aatggcggga cagccggagc 60

sequence listing

atcgaacgtg

70

<210> 94
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 7 for ligation-free PCR amplification of Pvm-150/M

<400> 94
caaagcgtgc cagtaaatta gacaactacc agtcccatg cgcgatcaat gaacaaccaa 60
ccacccgggc 70

<210> 95
<211> 82
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 8/Eag I for ligation-free PCR amplification of Pvm-150/M

<400> 95
tattaacggc cgacaacctg aggggaaccac gacgcgggtc tgatagaagc acccagcgga 60
tttctgtgcc cgggtggttg gt 82